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PATENT

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Raab  
Serial No.: 09/610,933  
Filing Date: July 6, 2000  
Title: Electronically Tuned Power Amplifier

Docket GMRR PA00-3  
Date: May 24, 2002  
Group Art Unit: 2817  
Examiner: M. Shingleton  
FAX: 703 308-7722  
Phone: 703 308-4903

## Affidavit Under 37 CFR 1.131

Assistant Commissioner of Patents  
Washington, D.C. 20231

Sir:

I, Frederick H. Raab declare that:

1. I am the inventor of the subject matter which is claimed in the U.S. Patent Application having serial number 09/610,933 which was filed in the U.S. Patent and Trademark Office on July 6, 2000 based on U.S. Provisional Application 60/142,419, filed on July 6, 1999 and on Provisional Application 60/180,746 filed on February 7, 2000.

CERTIFICATE OF MAILING	
I hereby certify that, on the date shown below, this correspondence is being:	
<b>MAIL</b>	<b>FACSIMILE</b>
<input checked="" type="checkbox"/> deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner of Patents Washington, DC 20231.	<input type="checkbox"/> transmitted by facsimile to the Patent and Trademark Office.
Date: <u>5/29/02</u>	<div><div><u>James H. Leas</u> Name</div><div><u>James H. Leas</u> Signature</div></div>

2. Prior to July 1, 1999 I conceived the invention disclosed in the in the 60/142,419 provisional application in the United States.
3. I completed the three documents included in Provisional Patent Application 60/142,419 before July 1, 1999. These documents show conception of the invention disclosed and claimed in the 09/610,933 non-provisional application before July 1, 1999.
4. Specifically, Exhibit A is a true copy of RN98-10, dated June 26, 1998, one of the documents included in provisional patent application 60/142,419. Exhibit A shows conception of the idea of an electronically tunable high efficiency power amplifier that uses an electronically tunable variable capacitor, lists various devices that can be used as the variable capacitor, including MOSFETs, PIN diodes, or MMDCs, and states that the network including the variable capacitor "is retuned for the frequency of operation" and can operate "over a frequency range of 2:1 or more." Thus, the present inventor conceived the idea of using a network including an electronically tunable capacitor to match frequency of the signal it is amplifying before July 1, 1999.
5. Exhibit B, P99-4 is a true copy of another of the documents included in provisional patent application 60/142,419. In addition, Exhibit B includes an Epscor grant proposal cover sheet that was omitted from the provisional application. The cover sheet is dated prior to July 1, 1999, and shows that the document was created before July 1, 1999. Exhibit B shows conception of the invention of an electronically tunable power amplifier that uses a variable capacitor. In FIG. 2, Exhibit B shows a circuit diagram for a class-E power amplifier with electronic tuning in which a variable capacitor is used for the electronic tuning.
6. Exhibit C, RN99-3 is a true copy of another of the documents included in provisional patent application 60/142,419. Exhibit C is dated February 11, 1999. Exhibit C shows conception of the idea of using variable inductors and variable capacitors in the tunable network, as shown in Figure 1 of Exhibit C and as further described in the text on page 1, lines 12-13.
7. Exhibit D is a true copy of a circuit diagram included in provisional patent application 60/142,419. This circuit diagram was also created before July 1, 1999. The circuit diagram shows conception of the idea of electronically tuning voltage variable capacitors and an electronically variable inductor in a matching network to match an arbitrary or variable load before July 1, 1999.
8. Thus, Exhibits A, B, C, and D, that are already of record in the July 6, 1999

provisional application, were created before July 1, 1999 and show conception of the invention disclosed in the 60/142,419 provisional application and claimed in the 09/610,933 non-provisional application before July 1, 1999.

9. I exercised due diligence from before the filing date of U.S. patent 6,232,841 to Bartlett et al. which was filed on July 1, 1999 until the filing date of my own provisional patent application 60/142,419 on July 6, 1999.
10. Time I spent working on the provisional patent application is documented in my time sheet, Exhibit E, a true copy of which is attached. Exhibit E shows that I worked on code IP-GEN, the code for the provisional patent application, on Monday, June 28, Tuesday, June 29, Thursday, July 1, and Friday, July 2, 1999. I completed selecting and assembling documents for the provisional application on Tuesday, June 29 and was at that point ready to turn it over to Rebecca A. Raab for copying and mailing to the PTO. As shown in Rebecca A. Raab's diary, Exhibit RR1, attached to her affidavit, she was sick on Wednesday June 30.
11. As described in the attached affidavit from Rebecca A. Raab, provisional patent application 60/142,419 was mailed by Rebecca A. Raab to the US PTO from Vermont with first class postage on July 2. The filing date of July 6 was the date it was received at the US PTO—since it was not sent by the Express Mail service of the US Postal Service.
12. Attached to Rebecca A. Raab's affidavit are Exhibits RR1 and RR2. RR1 is a true copy of a diary record created by Rebecca A. Raab. RR2 is a true copy of Rebecca A. Raab's time sheet. Exhibits RR1 and RR2 show that Rebecca A. Raab worked on preparing the provisional application for mailing to the PTO on July 1 and on July 2, 1999. RR1 shows that she copied and mailed provisional patent application 60/142,419 to the US PTO on July 2, 1999.
13. On July 1, 1999, when I turned the provisional patent application over to Rebecca A. Raab for copying and mailing to the US PTO, I reviewed the documents to be enclosed in the provisional patent application, signed the provisional application cover sheet, and signed the check to be included with the provisional patent application. Attached are true copies of the provisional patent application cover sheet, exhibit F, and the check made out to the PTO, exhibit G, which are both dated July 1, 1999.
14. On July 2, 1999, before Rebecca A. Raab mailed provisional patent application to the US PTO on July 2, I reviewed the contents of the application she was preparing for mailing. Time for my review on July 2, 1999, is shown in Exhibit E.

15. Thus, by July 1, the provisional had been turned over to Rebecca A. Raab for copying and mailing; on July 2 it was mailed; and from July 2, 1999 to July 6, 1999 the provisional application was in the US mail to the US PTO or was in the possession of the US PTO.

I hereby declare that all statements made herein to my knowledge are true and that all statements were made with the knowledge that willfully false statements and the like so made are punishable by fine, imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willfully false statements may jeopardize the validity of any patent issued thereon.

Frederick H. Raab      May 24, 2002  
Frederick H. Raab      Date

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